

## The Center for Electron Microscopy and Nanofabrication

### Science Building 1 Room 22 Basement Level

The Center for Electron Microscopy and Nanofabrication at Portland State University is a signature research facility of the Oregon Nanoscience and Microtechnology Institute (ONAMI), a collaboration between Oregon's research universities, Pacific Northwest National Laboratories and industry partners. The CEMN center possess a variety of instrumentation including; FEI Tecnai F-20 TEM, FEI Sirion XL30 FEG SEM, Zeiss Sigma VP FEG SEM, FEI Strata 237 Dual Beam FIB, Quantachrome Nova 2200e, VersaProbe II XPS/AES, Lesker AXXIS Thin Film Deposition System and FEI Helios 400s dual beam. For more information visit <https://www.pdx.edu/cemn/welcome> or come take a tour.



## Erik Sanchez Lab

### Science Research and Teaching Center (SRTC) Room 170/169

Focusing on the development and implementation of nano-scale imaging techniques, we study the optical interaction of light and nanometric objects in order to generate enhanced fields for fluorescence and Raman spectroscopy/microscopy and determine new applications for Focused Ion/Electron Beam systems toward the study of biological systems using near-field and far-field microscopes. The

Nano Development Group has a wide range of tools at its disposal to perform novel research. Many of these instruments have been made from thrown out components and pieced together with care to perform useful functions. These include a focused ion beam (FIB) system, Gatan turbo pumped ion milling system (Mdl. 600A), it is used to thin bulk samples and includes an end point detection system, and a Micrion FIB using a SIMS IIIXP system.

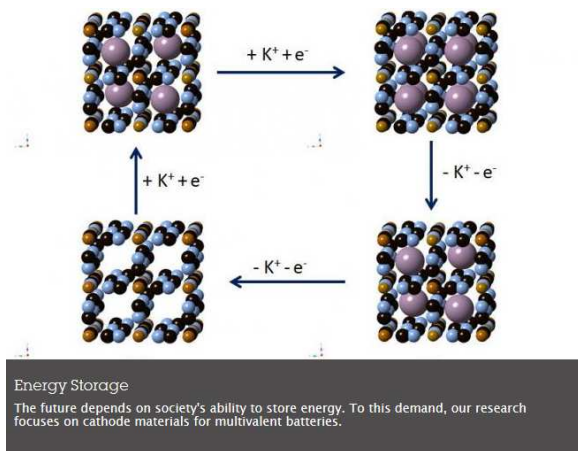


# Raj Solanki Lab

Science Building 1 Room B2-55

The long-term objective of our lab has been to investigate electronic and optical materials and device fabrication processes for scaling down integrated circuits. Early work consisted of employing lasers and lamps to grow silicon-based and compound semiconductor films at low temperatures. This was followed by developing atomic layer deposition (ALD) for growth of nano-scale thin films. Our group was one of the first in US to work on ALD. The current research falls under the

general categories of nanoelectronics, bio-electronics, and alternate energy sources, all of which have a common thread of solving problems related to improving economic and human conditions. We have expertise in multivalent batteries, nanoelectronics, atomic layer deposition, biosensors, solar cells, and graphene chemistry.



# Jun Jiao Lab

Maseeh College of Engineering & Computer Science (MCECS) Suite 301L

Dr. Jiao's current research is focused on the development of nanofabrication techniques for the property-controlled growth of nanotubes and nanowires, and the investigation of carbon nanotubes and semiconductor nanowires as building blocks for nanoelectronic devices and as the new generation of electron field emitters. Dr. Jiao is committed to mentoring and developing new researchers. In addition to managing an [REU site](#), Dr. Jiao's lab

provides a wide range of opportunities for both graduate and undergraduate research. Some of the projects currently underway include, sustainable groundwater treatment using granular activated carbon supported bimetal catalysts, efficiency enhancement of photocatalytic water purification using 3D optical materials, photocatalytic material synthesis and reactor development for semiconductor quantum yield optimization and developing advanced techniques for computationally refining images gathered with in situ observation of metal oxide phase transformations using the transmission electron microscope.

